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# Swiss bike-to-work campaign: Did we reach the intended population?

## Abstract

*Bike-to-work* campaigns aim to promote active commuting to increase physical activity. Little is known about the characteristics of the population which is reached by such initiatives. In the framework of a *bike-to-work* campaign involving a large Swiss company, structured telephone interviews were conducted with a random sample of 178 campaign participants and 159 non-participants. Participants and non-participants did not significantly differ regarding gender, education or physical activity level. Yet, participants were younger, lived closer to work and habitually commuted by bike. Still, 37.6% of the participants had not used the bike for commuting to work prior to the campaign.

## Zusammenfassung

Das Ziel von *bike-to-work*-Kampagnen ist die Verbesserung des Bewegungsverhaltens durch die Förderung des aktiven Transports. Man weiss noch wenig über das Profil der Arbeitnehmer, welche mit solchen Initiativen erreicht werden. Im Rahmen einer *bike-to-work*-Kampagne, welche in einer grossen Schweizer Firma durchgeführt wurde, konnten mit Zufallsstichproben von 178 Teilnehmern und 159 Nichtteilnehmern strukturierte Telefoninterviews durchgeführt werden. Teilnehmer und Nichtteilnehmer unterschieden sich nicht bezüglich Geschlecht, Bildungsniveau oder Bewegungsverhalten. Hingegen waren die Teilnehmer jünger, wohnten näher beim Arbeitsplatz und fuhren bereits vor der Kampagne häufiger mit dem Velo zur Arbeit. 37.6% aller Teilnehmer hatten vor der Kampagne das Fahrrad auf dem Arbeitsweg nicht genutzt.

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## Introduction

The consequences of an increasingly sedentary lifestyle and the growing use of motorised transport profoundly contribute to the global burden of disease (WHO, 2002). The international and national recommendations for health-enhancing physical activity of 30 minutes of moderately intensive activities on five days of the week, or alternatively, 20 minutes of vigorous exercise three days a week (Haskell et al., 2007; Swiss Federal Office of Sports et al., 2006) are only met by 35.9% of the adult Swiss population (Lamprecht and Stamm, 2006). To encourage people to acquire or maintain a physically active lifestyle is a major challenge, and interventions in this field have become a public-health focus (Hillsdon et al., 2005). There is increasing evidence that activities which can be integrated into daily life, such as active commuting to work, are beneficial for health and should be promoted (Ogilvie et al., 2004; Oja, Vuori and Paronen, 2000).

In 2005, the Swiss Bicycle Advocacy Association initiated a *bike-to-work* pilot campaign in collaboration with a large national production and service company, incorporating approximately 80 000 employees. The campaign was adapted from similar initiatives in Scandinavia and Germany. It aimed to promote active commuting to work, targeting insufficiently active persons, employees usually commuting to work by public transport or car, all age, sociodemographic groups and both genders. In addition, the campaign intended to encourage subjects who usually bike to work to maintain their mode of transportation. The aim of this study was to examine if the Swiss *bike-to-work* campaign reached the intended population whilst investigating sociodemographic characteristics, levels of physical activity and the commuting behaviour of participants and non-participants.

## Methods

Random sampling procedures were performed to select 315 employees of the involved company who had registered for the *bike-to-work* campaign ("participants") and 355 employees of the same company who did not attend the campaign ("non-participants").

A structured telephone interview was carried out by 8 trained assistants during the 7 work days prior to the campaign which started on May 10th, 2005. Participants and non-participants were interviewed in parallel at their workplace during working hours. The duration of the interview was 7–10 minutes.

The standardised interview included the following topics:

1) *Sociodemographic characteristics* such as age (expressed as three age groups: 18–34, 35–49 and 50–62 years), gender, nationality (Swiss or other nationalities) and highest educational achievement. Compulsory schooling, apprenticeship and vocational training were classified as "lower educational level" and matriculation, pedagogic education, university, college and higher education as "higher educational level."

2) *Physical activity behaviour* using the standardised questions developed by the Swiss Federal Office of Sports (FOSPO) and used for the Swiss Health Survey (Lamprecht and Stamm, 2006) addressing moderate intensity and vigorous intensity activities. To measure moderate intensity physical activity, the employees were asked on how many days per week and for how many minutes per day they performed activities such as brisk walking, hiking, dancing or gardening. Vigorous intensity activity levels were determined by asking on how many days per week and for how many minutes per day the employees performed activities such as jogging, aerobics, tennis, fast cycling, team sport, swimming, carrying heavy loads, shovelling and digging. According to the

current Swiss recommendations for health enhancing physical activity (Swiss Federal Office of Sports et al., 2006; Lamprecht and Stamm, 2006) information on physical activity behaviour was classified into five categories *(see Table 1)*.

3) *Mobility behaviour* questions inquiring about the usual mode of transport to work, distance between home and work and the duration of travel to work. Answers to questions on usual mode of transport were classified into the six categories documented in *Table 1*. Additionally, the participants' *intended mode of transport* during the campaign was assessed.

Furthermore, open questions asking about the *reasons for participation or non-participation* were included and the answers summarised into meaningful categories.

Stata version 8 (Stata Corp LP, College Station TX, USA) was used for the statistical analysis. To test group differences, Chi-Square-Tests were used for categorical data. Multivariate logistic regression analysis was carried out to calculate differences in physical activity behaviour adjusted for age and gender.

## Results

A total of 178 participants and 159 non-participants were interviewed. Response rates were 56.5 % and 44.8 %, respectively.

Participants were significantly younger than non-participants but did not differ with respect to gender or educational background as shown in *Table 1*. Participants lived closer to their workplace and were more likely to use the bike as their usual mode of transport to work whereas non-participants predominantly used individual motorised transport or public transport to commute to work. Still, among participants 26.4% commuted by car and 11.2% used public transportation prior to the campaign start.

Physical activity levels prior to the campaign did not differ significantly between participants and non-participants when the five activity categories were considered *(Table 1)*. Combining the first two categories to represent sufficient physical activity and the remaining three categories to indicate insufficient physical activity, marginal differences between participants and non-participants were revealed (45.2% of the participants were insufficiently physically active compared to 55.7% of the non-participants, p=0.055). When adjusting for age and gender, these differences became less pronounced (p=0.091).

During the *bike-to-work* campaign 74.4% of all participants planned to commute to work by bike only whereas 25.6% intended to travel by bike in combination with other transport modes. Those who chose to use the bike only lived closer to the workplace (p<0.001), and were more likely to use the bike as their usual mode of transport to work (p<0.001). Yet, the level of physical activity was not significantly associated with using the bike only during the campaign.

Health (39.9%) and motivation through a team or team-building process (35.4%) were the main reasons for participation, and a distance too great to travel to work (46.7%) and no interest in cycling to work (14.6 %) were the main reasons indicated for non-participation.

## Discussion

This study demonstrates that the Swiss *bike-to-work* pilot campaign mostly reached the intended population. It is noteworthy that all socioeconomic groups, both genders and also insufficiently active subjects could be motivated to participate – at least according to self reports. Not surprisingly, a shorter distance between home and workplace and younger age were among the factors significantly associated with participation. From an ecological perspective, the study demonstrates that more than one quarter of the participants usually commuting to work by individual motorised transportation decided to bike during the four weeks of the campaign. This proportion was higher than in a previous *bike-to-work* campaign in Denmark (Krag, 2000). Health clearly ranked as the main motivation

*Table 1:* Sociodemographic characteristics, mobility and physical activity behaviour of participants and non-participants (prior to the campaign start)

| | Participants (n= 178) | Non-participants (n= 159) | $\chi^2$ test |
|---|---|---|---|
| | n (%) | n (%) | p-value |
| **Age groups** | | | 0.030 |
| 18–34 years | 73 (41.0) | 67 (42.1) | |
| 35–49 years | 74 (41.6) | 48 (30.2) | |
| 50–62 years | 31 (17.4) | 44 (27.7) | |
| **Gender** | | | 0.276 |
| female | 79 (44.4) | 80 (50.3) | |
| male | 99 (55.6) | 79 (49.7) | |
| **Nationality** | | | 0.728 |
| Swiss | 158 (88.8) | 143 (89.9) | |
| other nationalities | 20 (11.2) | 16 (10.1) | |
| **Education level** * | | | 0.773 |
| lower | 112 (62.9) | 97 (61.4) | |
| higher | 66 (37.1) | 61 (38.6) | |
| **Travel distance to work** | | | <0.001 |
| up to 1 km | 10 (5.6) | 13 (8.2) | |
| 1–3 km | 49 (27.5) | 10 (6.3) | |
| 3–8 km | 55 (30.9) | 28 (17.6) | |
| more than 8 km | 64 (36.0) | 108 (67.9) | |
| **Commuting time** (door to door) * | | | 0. 019 |
| up to 15 minutes | 97 (54.5) | 59 (37.3) | |
| up to 30 minutes | 47 (26.4) | 56 (35.5) | |
| up to 60 minutes | 28 (15.7) | 36 (22.8) | |
| longer than 60 minutes | 6 (3.4) | 7 (4.4) | |
| **Usual mode of transport to work** (door to door) | | | <0.001 |
| walking | 2 (1.1) | 9 (5.7) | |
| bike | 66 (37.1) | 4 (2.5) | |
| bike in combination with public transport | 22 (12.4) | 7 (4.4) | |
| bike in combination with individual motorised transport | 21 (11.8) | 3 (1.9) | |
| public transport | 20 (11.2) | 39 (24.5) | |
| Individual motorised transport | 47 (26.4) | 97 (61.0) | |
| **Physical activity: 5 categories** *,† | | | 0.251 |
| trained | 73 (41.2) | 50 (31.6) | |
| regularly active | 24 (13.6) | 20 (12.7) | |
| irregularly active | 45 (25.4) | 42 (26.6) | |
| partially active | 26 (14.7) | 36 (22.8) | |
| inactive | 9 (5.1) | 10 (6.3) | |

* Missing values. Educational level: 1 non-participant; commuting time: 1 non-participant; level of physical activity: 1 participant and 1 non-participant.

† Physical activity: definition of 5 categories: (1) trained: vigorous activities of at least 20 minutes on at least three days per week, (2) regularly active: at least 30 minutes of moderate intensity activities on five days per week, (3) irregularly active: at least 150 minutes of moderate intensity activities per week (distributed over less than 5 days) or two episodes of vigorous activities per week, (4) partially active: at least 30 minutes of moderate intensity activities or one episode of vigorous activity per week and (5) inactive: all others.

for participation, and longitudinal research has shown that cycling to work is indeed associated with lower mortality (Andersen et al., 2000). Given the fact that the average commuting distance of Swiss employees is less than 5 kilometres and that the bike travel time of the Swiss adult population continuously decreases (Bundesamt für Statistik,2007) annual *bike-to-work* campaigns may contribute to modifying this trend. In addition, such campaigns encourage employees who usually bike to work to maintain this activity.

Whether such campaigns have a longstanding effect on commuting behaviour can only be determined with longitudinal data, and these are scarce. A Danish evaluation of a *bike-to-work* campaign in 1999 has shown that 25% of those who had already participated in the 1998 campaign and had previously commuted by car, reported increased bike use since 1998 (Krag, 2000).

In conclusion, the present analyses indicate that *bike-to-work* campaigns have the potential to address ecological as well as health related targets.

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